

## Agricultural dynamics associated with forest recovery. A case study in Chorotega, Costa Rica

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Muriel BONIN, CIRAD-Universidad Nacional de Costa Rica (UNA)/CINPE (Costa Rica), [muriel.bonin@cirad.fr](mailto:muriel.bonin@cirad.fr)

Hernán CAMACHO, Universidad Nacional de Costa Rica, Escuela de geografía (Costa Rica), [hcamachov@gmail.com](mailto:hcamachov@gmail.com)

Jean-François LE COQ, CIRAD-Universidad Nacional de Costa Rica (UNA)/CINPE (Costa Rica), [jflecoq@cirad.fr](mailto:jflecoq@cirad.fr)

Cristopher MORA, Universidad Nacional de Costa Rica, Escuela de geografía (Costa Rica), [geocristopher@gmail.com](mailto:geocristopher@gmail.com)

Fernando SAENZ, Universidad Nacional de Costa Rica (UNA)/CINPE (Costa Rica), [fernando.saenz.segura@una.cr](mailto:fernando.saenz.segura@una.cr)

A forest transition is observed in many countries around the world (Barbier *et al.*, 2010) and in particular in Central America (Reno *et al.*, 2012). Many explanations have been given to the deforestation phase and to the reforestation that follows (Meyfroidt *et al.*, 2010). Our research question is to investigate types of agricultural dynamics associated with forest recovery. Our theoretical framework is based on a typology of drivers of land use changes (Geist&Lambin, 2002). Our case study is in Costa Rica, characterized by a high reforestation rate, especially in the Región Chorotega (Calvo-Alvaro *et al.*, 2009). Our methodology combines bibliographic review, satellite image analysis (Landsat in 2000; RapidEye in 2012), mapping of census data, and interviews with key actors. We identified three types of agricultural dynamics associated with reforestation: 1) expansion of the sugar cane agro-industry in irrigated zone at the expense of food production (rice) driven by the dynamic of private agroindustry and privileged access to public investment in irrigation infrastructure and a transition from pasture to forest; 2) the integration of a diversified agriculture within an integrated rural development in hinterland zone, with commercial forest plantations supported by rural development programs and local community organizations, and 3) abandonment of agriculture in coastal areas in favor of tourism development boosted by foreign investment. Our empirical evidences go beyond the duality intensification/abandonment and highlight the spatial diversity of agricultural dynamics to explain forest recovery emphasizing the role of stakeholders within the drivers of these dynamics (agro-industrials, rural community, foreign investors).

**Key words:** Forest transition, agricultural change, land use change, drivers, Guanacaste, Costa Rica